Weather and climate experts from across the UK came together at the Met Office's HQ in Exeter today for a workshop to discuss the recent run of unusual seasons in Europe.

A total of 25 delegates attended including representatives from the Universities of Exeter, Leeds, Oxford, Reading and Imperial College London, as well as the Met Office.

Workshops of this kind are held on a regular basis on a great deal of issues across weather and climate science.

Today's included sessions which looked at the weather patterns and their potential causes in three recent seasons - the cold winter of 2010/11, the wet summer of 2012, and this year's cold spring.

Professor Stephen Belcher, Head of the Met Office Hadley Centre and chair of the meeting, said: "Ultimately what we've seen in each of these seasons is shifts in the position of the jet stream which impact our weather in certain ways at different times of year.

"The key question is what is causing the jet stream to shift in this way? There is some research to say some parts of the natural system load the dice to influence certain states of the jet stream, but this loading may be further amplified by climate change."

There are a number of possible factors which could be 'loading the dice', including declining Arctic sea ice, solar variability, long-term ocean cycles, and other long-term cycles of natural variability.

The workshop focused on the latest research looking at how these drivers can influence weather patterns and discussed future research can be targeted to push forward understanding in this area.

Five out of the last six UK summers have seen above average rainfall (2010 is the exception, with average rainfall) and the workshop heard new evidence from the University of Reading suggesting that long-term Atlantic currents may be playing an important role.

These are understood to operate on cycles of a decade or more, which suggests that we may see their influence on our summers for a few more years to come. While these influence the odds of a wet summer, it doesn't rule out the possibility of decent summers over the next few years.

With regards to the cold winters, there is a wide range of drivers that could have an influence.

There is some initial evidence to suggest that changes in Arctic climate may also be making an impact.

Dr James Screen, from the University of Exeter, said: "There has been a lot of talk about declining Arctic sea ice playing a role in our weather patterns, but really that's just one aspect of changes in the Arctic climate - which has seen rapid warming compared to other parts of the world.

"Those changes mean there is less of a difference in temperature between the Arctic and tropics, which could impact the position of the jet stream."

Visit the Met Office news blog for a full list of attendees and statistics from recent seasons.

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